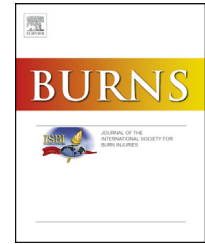


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# Scald burn, a preventable injury: Analysis of 4306 patients from a major tertiary care center



Shamendra Anand Sahu, Karoon Agrawal\*, Pankaj Kumar Patel

Department of Burns, Plastic and Maxillofacial Surgery, Safdarjung Hospital and VMMC, Ansari Nagar West, New Delhi 110029, India

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## ABSTRACT

**Background:** Scalds have distinct epidemiological and predisposing risk factors amongst all types of burns. Though scald affects all age groups, the brunt falls on the minor age groups. It may result in major physical disabilities and significant loss of school years. Apart from the economic burden on family, major scald burn may compromise overall development of the affected children. Most of the scald injuries occur in domestic settings and are preventable. Despite improvement in living conditions, the incidence of scald burn has failed to decline. Our aim was to study the detailed epidemiology and severity of scald burn amongst all age groups.

**Methods:** A retrospective study was carried out from the records of all burn patients who attended a tertiary burn care center from January 2013 and December 2014. Data of the patients with scald injury was segregated and analyzed using Microsoft excel spreadsheet. **Result:** 10,175 burn patients attended the burn casualty during the study period, of which 42.3% had sustained scald. 56.85% of patients were under 15 years of age with preschool children (36.4%) being the prime victims of scald. The % TBSA involved is also relatively larger in children. Scald follows definite seasonal variation peaking in winters. 36.8% patients arrived to the hospital without any first aid. 74.2% of patients reported to casualty within 24 hours after sustaining scald injury. The median time interval between injury and reporting to casualty was 3 hours 30 minutes.

**Conclusion:** This study concludes that the scald is injury of all age groups, though majority of them are children. The first aid is not given to large number of patients and late reporting is quite common. These are the factors which may affect the course of scald burn. Spreading public awareness regarding safe household practises and educating them for proper first aid management after scald may have significant impact on the burden of care and outcome.

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## 1. Introduction

Burn is a common cause of physical trauma. It may range from minor skin involvement to major multisystem derangements.

Despite the recent advances in surgical and critical care skills, optimum management of burn patient is a challenge. Though it is a worldwide problem, the demographic characteristics are quite different in both developed as well as developing countries.

\* Corresponding author at: T-23 First floor, Green Park Main, New Delhi 110016, India. Tel.: +91 9560 9044 88.

E-mail addresses: [shamendrasahu@gmail.com](mailto:shamendrasahu@gmail.com) (S.A. Sahu), [karoonaparna@gmail.com](mailto:karoonaparna@gmail.com) (K. Agrawal), [post\\_me@outlook.com](mailto:post_me@outlook.com) (P.K. Patel).

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According to World Health Organization (WHO), 2014, estimated 265,000 deaths occur every year due to burn injury [1]. Lately the incidence of burn in developed countries has been on decline, while in developing countries it is on the rise. In India, over 1 million people sustain significant burn annually [1]. However, based on extrapolated data, Gupta JL in 2010 claimed that approximately 6–7 million people sustain burn in India annually [2].

Scald makes a significant number of patients amongst different types of burn. Scald almost always occurs accidentally. A retrospective review of 127,016 hospitalized burn patients from 79 US hospitals found scald as the second most common cause of burn accounting for 30% of total burn injury [3]. Chien et al. reported scald the most common cause of burn injury in Taiwan [4]. An epidemiologic study of burns at a tertiary care hospital in India, reported 7% of burn caused by scald [5].

Most of the scald injuries result from domestic accidents and hence preventable. It is vital to have sound information on predictors of its occurrence. On search through the English literature on burns, we could get very limited information on epidemiological profile and pattern of scald injuries. Most of the literature speaks about scalds in children, however, there is very little data on scald in all age groups, more so in adults. This fact further emphasizes the need of well-structured study in order to know the exact causes.

Present study is an attempt to identify the risk and predisposing factors in patients sustaining scald burns and to analyze the demographics of this potential threat amongst the patients of all age groups attending the burn casualty in a tertiary care center.

## 2. Material and methods

This is a retrospective cohort study conducted in the department of Burns, Plastic and Maxillofacial surgery. This is one of the major tertiary burn care center in the northern part of the country. This department receives burn patients directly through independent in-house casualty exclusively for burn patients. Our center serves 46 million population of national capital region and the people of adjoining states.

At the time of initial reporting the patients are attended by plastic surgery trainee residents who are part of the burn care team. They record all the information on a specially pre-designed patient data proforma. This proforma is guided and supervised by the senior author directly. The concerned resident is also supposed to give opinion in court in case it is required. Hence, they are sincere enough to record the data authentically. The data are further entered in Microsoft excel spreadsheet by data entry operator on a daily basis. The recorded data are rechecked for its correct entry in due course.

Records of all the 10,175 burn patients attended during January 2013 to December 2014 have been studied. Data of patients sustaining scald injury has been segregated from the master file and statistically analyzed. There was no data loss for the period of study. The age group, gender predisposition, the mode of injury, first aid administered and time interval before presentation to our emergency has been studied. As per the institutional policy, children less than 10% and adults less

than 15% TBSA burns were treated as outpatients, except for those who had associated inhalational injury or with signs of vascular compromise.

Data of scald injury patients were filtered month wise in the spread sheet and thoroughly studied. The demographic variables were analyzed by using filters on a single spreadsheet. A written informed consent was taken from every patient for inclusion in the study. There were no exclusion criteria. The due clearance was awarded by the Institute Research Committee and the Institute Ethical Committee.

## 3. Results

Being a large tertiary care hospital in a metropolitan city, it receives a large number of burn patients round the clock. Out of the 10,175 burn patients, there were 4306 (42.3%) patients who sustained scald injury. 4861 (47.8%) patients sustained thermal burns while rest were electrical and chemical burns (Fig. 1).

Our cohort of patients had scald burn affecting all age groups ranging from 1 year to 85 year with median age of 10 years. However 56.85% of patients were <15 years of age, indicating children are the common victims. 54.5% victims were male. (Table 1). 54.6% patients were preschool and school going children. The College going and working class were next common, while housewives are only 10.5% in number (Fig. 2).

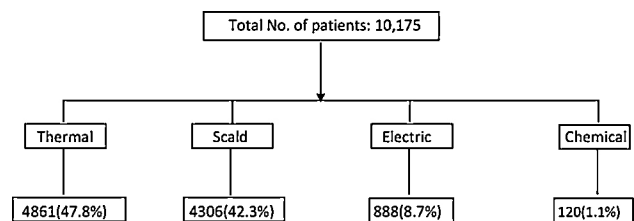


Fig. 1 – Consort diagram showing 2 years distribution of burn patients.

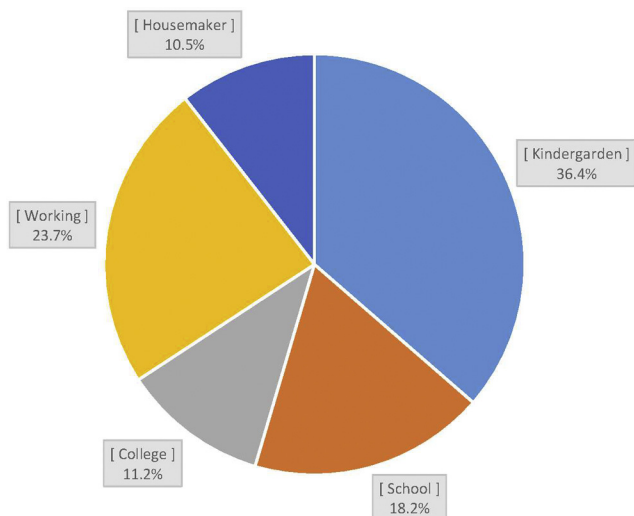


Fig. 2 – Education and Work group wise distribution of scald patients.

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